

## SEQUENCE LISTING

&lt;110&gt; AKZO Nobel N.V.

&lt;120&gt; Shiga-like toxin vaccine

&lt;130&gt; 2003.006

&lt;160&gt; 4

&lt;170&gt; PatentIn version 3.2

&lt;210&gt; 1

&lt;211&gt; 1325

&lt;212&gt; DNA

&lt;213&gt; Escherichia coli

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1) .. (954)

&lt;400&gt; 1

atg atg aag tgt ata ttg tta aag tgg ata ctg tgt ctg tta ctg ggt	48
Met Met Lys Cys Ile Leu Leu Lys Trp Ile Leu Cys Leu Leu Leu Gly	
1 5 10 15	

ttt tct tcg gta tcc tat tcc cag gag ttt acg ata gac ttt tcg act	96
Phe Ser Ser Val Ser Tyr Ser Gln Glu Phe Thr Ile Asp Phe Ser Thr	
20 25 30	

caa caa agt tat gta tct tcg tta aat agt ata cgg aca gtg ata tcg	144
Gln Gln Ser Tyr Val Ser Ser Leu Asn Ser Ile Arg Thr Val Ile Ser	
35 40 45	

acc cct ctt gaa cat ata tct cag gga gct aca tcg gta tcc gtt att	192
Thr Pro Leu Glu His Ile Ser Gln Gly Ala Thr Ser Val Ser Val Ile	
50 55 60	

aat cat aca cca cca gga agt tat att tcc gta ggt ata cga ggg ctt	240
Asn His Thr Pro Pro Gly Ser Tyr Ile Ser Val Gly Ile Arg Gly Leu	
65 70 75 80	

gat gtt tat cag gag cgt ttt gac cat ctt cgt ctg att att gaa cga	288
Asp Val Tyr Gln Glu Arg Phe Asp His Leu Arg Leu Ile Ile Glu Arg	
85 90 95	

aat aat tta tat gtg gct gga ttt gtt aat acg aca aca aat act ttc	336
Asn Asn Leu Tyr Val Ala Gly Phe Val Asn Thr Thr Thr Asn Thr Phe	
100 105 110	

tac aga ttt tca gat ttt gca cat ata tca ttg ccc ggt gtg aca act	384
Tyr Arg Phe Ser Asp Phe Ala His Ile Ser Leu Pro Gly Val Thr Thr	
115 120 125	

att tcc atg aca acg gac agc agt tat acc act ctg caa cgt gtc gca	432
Ile Ser Met Thr Thr Asp Ser Ser Tyr Thr Thr Leu Gln Arg Val Ala	
130 135 140	

gcg ctg gaa cgt tcc gga atg caa atc agt cgt cac tca ctg gtt tca	480
Ala Leu Glu Arg Ser Gly Met Gln Ile Ser Arg His Ser Leu Val Ser	
145 150 155 160	

tca tat ctg gcg tta atg gag ttc agt ggt aat aca atg acc aga gat	528
Ser Tyr Leu Ala Leu Met Glu Phe Ser Gly Asn Thr Met Thr Arg Asp	
165 170 175	

gca tca aga gca gtt ctg cgt ttt gtc act gtc aca gca gaa gcc tta	576
-----------------------------------------------------------------	-----

## 2

Ala Ser Arg Ala Val Leu Arg Phe Val Thr Val Thr Ala Glu Ala Leu  
180 185 190

cgg ttc agg caa ata cag aga gaa ttt cgt ctg gca ctg tct gaa act 624  
Arg Phe Arg Gln Ile Gln Arg Glu Phe Arg Leu Ala Leu Ser Glu Thr  
195 200 205

gct cct gtt tat acg atg acg ccg gaa gac gtg gac ctc act ctg aac 672  
Ala Pro Val Tyr Thr Met Thr Pro Glu Asp Val Asp Leu Thr Leu Asn  
210 215 220

tgg ggg aga atc agc aat gtg ctt ccg gag tat cgg gga gag gct ggt 720  
Trp Gly Arg Ile Ser Asn Val Leu Pro Glu Tyr Arg Gly Glu Ala Gly  
225 230 235 240

gtc aga gtg ggg aga ata tcc ttt aat aat ata tca gcg ata ctt ggt 768  
Val Arg Val Gly Arg Ile Ser Phe Asn Asn Ile Ser Ala Ile Leu Gly  
245 250 255

act gtg gcc gtt ata ctg aat tgt gga aat tca tca aga aca atc aca 816  
Thr Val Ala Val Ile Leu Asn Cys Gly Asn Ser Ser Arg Thr Ile Thr  
260 265 270

ggt gat act tgt aat gag gag acc cag aat ctg agc aca ata tat ctc 864  
Gly Asp Thr Cys Asn Glu Glu Thr Gln Asn Leu Ser Thr Ile Tyr Leu  
275 280 285

agg gaa tat caa tca aaa gtt aag agg cag ata ttt tca gac tat cag 912  
Arg Glu Tyr Gln Ser Lys Val Lys Arg Gln Ile Phe Ser Asp Tyr Gln  
290 295 300

tca gag gtt gac ata tat aac aga att cgg gat gaa tta tga 954  
Ser Glu Val Asp Ile Tyr Asn Arg Ile Arg Asp Glu Leu  
305 310 315

ataaagtaaa atgttatgtt ttatttacgg cgttactatc ctctctatat gcacacggag 1014

ctccccagac tattacagaa ctatgttcgg aatatcgcaa cacacaaata tatacgataa 1074

atgacaagat actatcatat acggaatcga tggcaggcaa aagagaaatg gttatcatta 1134

catttaagag cggcgaaaca ttccaggtcg aagtcgccggg cagtcaacat atagactccc 1194

agaaaaaagc cattgaaagg atgaaggaca cattaagaat cacatatctg accgagacca 1254

aaattgataa attatgtgta tggaataata aaacccccaa ttcaattgcg gcaatcagta 1314

tgaaaaaacta g 1325

<210> 2  
<211> 317  
<212> PRT  
<213> Escherichia coli

<400> 2

Met Met Lys Cys Ile Leu Leu Lys Trp Ile Leu Cys Leu Leu Leu Gly  
1 5 10 15

Phe Ser Ser Val Ser Tyr Ser Gln Glu Phe Thr Ile Asp Phe Ser Thr  
20 25 30

Gln Gln Ser Tyr Val Ser Ser Leu Asn Ser Ile Arg Thr Val Ile Ser  
35 40 45

Thr Pro Leu Glu His Ile Ser Gln Gly Ala Thr Ser Val Ser Val Ile  
 50 55 60

Asn His Thr Pro Pro Gly Ser Tyr Ile Ser Val Gly Ile Arg Gly Leu  
 65 70 75 80

Asp Val Tyr Gln Glu Arg Phe Asp His Leu Arg Leu Ile Ile Glu Arg  
 85 90 95

Asn Asn Leu Tyr Val Ala Gly Phe Val Asn Thr Thr Thr Asn Thr Phe  
 100 105 110

Tyr Arg Phe Ser Asp Phe Ala His Ile Ser Leu Pro Gly Val Thr Thr  
 115 120 125

Ile Ser Met Thr Thr Asp Ser Ser Tyr Thr Thr Leu Gln Arg Val Ala  
 130 135 140

Ala Leu Glu Arg Ser Gly Met Gln Ile Ser Arg His Ser Leu Val Ser  
 145 150 155 160

Ser Tyr Leu Ala Leu Met Glu Phe Ser Gly Asn Thr Met Thr Arg Asp  
 165 170 175

Ala Ser Arg Ala Val Leu Arg Phe Val Thr Val Thr Ala Glu Ala Leu  
 180 185 190

Arg Phe Arg Gln Ile Gln Arg Glu Phe Arg Leu Ala Leu Ser Glu Thr  
 195 200 205

Ala Pro Val Tyr Thr Met Thr Pro Glu Asp Val Asp Leu Thr Leu Asn  
 210 215 220

Trp Gly Arg Ile Ser Asn Val Leu Pro Glu Tyr Arg Gly Glu Ala Gly  
 225 230 235 240

Val Arg Val Gly Arg Ile Ser Phe Asn Asn Ile Ser Ala Ile Leu Gly  
 245 250 255

Thr Val Ala Val Ile Leu Asn Cys Gly Asn Ser Ser Arg Thr Ile Thr  
 260 265 270

Gly Asp Thr Cys Asn Glu Glu Thr Gln Asn Leu Ser Thr Ile Tyr Leu  
 275 280 285

Arg Glu Tyr Gln Ser Lys Val Lys Arg Gln Ile Phe Ser Asp Tyr Gln  
 290 295 300

Ser Glu Val Asp Ile Tyr Asn Arg Ile Arg Asp Glu Leu  
 305 310 315

<210> 3  
 <211> 1325  
 <212> DNA  
 <213> Escherichia coli

<220>  
 <221> CDS  
 <222> (951)..(1322)

<400> 3  
 atgatgaagt gtatatgtgt aaagtggata ctgtgtctgt tactggggtt ttcttcggta 60  
 tcctattccc aggagtttac gatagacttt tcgactcaac aaagttatgt atcttcgtta 120  
 aatagtatac ggacagtgat atcgaccctt cttgaacata tatctcaggg agctacatcg 180  
 gtatccgtta ttaatcatat accaccagga agttatattt ccgtaggtat acgagggctt 240  
 gatgtttatc aggagcgttt tgaccatctt cgtctgatta ttgaacgaaa taattttatat 300  
 gtggctggat ttgttaatac gacaacaaat actttctaca gattttcaga ttttgacat 360  
 atatcattgc ccggtgtgac aactatttcc atgacaacgg acagcagtta taccactctg 420  
 caacgtgtcg cagcgtgga acgttccgga atgcaaata gtcgtcactc actgggttca 480  
 tcatatctgg cgttaatgga gttcagtggt aatacaatga ccagagatgc atcaagagca 540  
 gttctgcgtt ttgtcactgt cacagcagaa gccttacggg tcaggcaaata acagagagaa 600  
 tttcgtctgg cactgtctga aactgctcct gtttatacga tgacgccgga agacgtggac 660  
 ctactctga actgggggag aatcagcaat gtgcttccgg agtatcgggg agaggctggg 720  
 gtcagagtgg ggagaatatc ctttaataat atatcagcga tacttggtac tgtggccgtt 780  
 atactgaatt gtggaaattc atcaagaaca atcacaggtg atacttgtaa tgaggagacc 840  
 cagaatctga gcacaatata tctcaggga tatcaatcaa aagttaagag gcagatattt 900  
 tcagactatc agtcagaggt tgacatatat aacagaattc gggatgaatt atg aat 956  
 Met Asn  
 1  
 aaa gta aaa tgt tat gtt tta ttt acg gcg tta cta tcc tct cta tat 1004  
 Lys Val Lys Cys Tyr Val Leu Phe Thr Ala Leu Leu Ser Ser Leu Tyr  
 5 10 15  
 gca cac gga gct ccc cag act att aca gaa cta tgt tgc gaa tat cgc 1052  
 Ala His Gly Ala Pro Gln Thr Ile Thr Glu Leu Cys Ser Glu Tyr Arg  
 20 25 30  
 aac aca caa ata tat acg ata aat gac aag ata cta tca tat acg gaa 1100  
 Asn Thr Gln Ile Tyr Thr Ile Asn Asp Lys Ile Leu Ser Tyr Thr Glu  
 35 40 45 50  
 tcg atg gca ggc aaa aga gaa atg gtt atc att aca ttt aag agc ggc 1148  
 Ser Met Ala Gly Lys Arg Glu Met Val Ile Ile Thr Phe Lys Ser Gly  
 55 60 65  
 gaa aca ttt cag gtc gaa gtc ccg ggc agt caa cat ata gac tcc cag 1196  
 Glu Thr Phe Gln Val Glu Val Pro Gly Ser Gln His Ile Asp Ser Gln  
 70 75 80  
 aaa aaa gcc att gaa agg atg aag gac aca tta aga atc aca tat ctg 1244  
 Lys Lys Ala Ile Glu Arg Met Lys Asp Thr Leu Arg Ile Thr Tyr Leu

85 90 95  
acc gag acc aaa att gat aaa tta tgt gta tgg aat aat aaa acc ccc 1292  
Thr Glu Thr Lys Ile Asp Lys Leu Cys Val Trp Asn Asn Lys Thr Pro  
100 105 110  
aat tca att gcg gca atc agt atg aaa aac tag 1325  
Asn Ser Ile Ala Ala Ile Ser Met Lys Asn  
115 120  
<210> 4  
<211> 124  
<212> PRT  
<213> Escherichia coli  
<400> 4  
Met Asn Lys Val Lys Cys Tyr Val Leu Phe Thr Ala Leu Leu Ser Ser  
1 5 10 15  
Leu Tyr Ala His Gly Ala Pro Gln Thr Ile Thr Glu Leu Cys Ser Glu  
20 25 30  
Tyr Arg Asn Thr Gln Ile Tyr Thr Ile Asn Asp Lys Ile Leu Ser Tyr  
35 40 45  
Thr Glu Ser Met Ala Gly Lys Arg Glu Met Val Ile Ile Thr Phe Lys  
50 55 60  
Ser Gly Glu Thr Phe Gln Val Glu Val Pro Gly Ser Gln His Ile Asp  
65 70 75 80  
Ser Gln Lys Lys Ala Ile Glu Arg Met Lys Asp Thr Leu Arg Ile Thr  
85 90 95  
Tyr Leu Thr Glu Thr Lys Ile Asp Lys Leu Cys Val Trp Asn Asn Lys  
100 105 110  
Thr Pro Asn Ser Ile Ala Ala Ile Ser Met Lys Asn  
115 120